

WHAT IS CLAIMED IS:

1. A method for inventory management, comprising:

determining a cumulative demand value for each of a plurality of time windows within a planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the planning horizon;

determining a cumulative production value for each time window, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the planning horizon;

determining a lean buffer stock value using the cumulative demand values and the cumulative production values, the lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the planning horizon; and

making the lean buffer stock value available for use in manufacturing the product.

2. The method of Claim 1, wherein determining the lean buffer stock value comprises:

determining a difference between the cumulative demand value and the cumulative production value for each time window; and

selecting the largest positive difference among all the time windows as the lean buffer stock value.

3. The method of Claim 1, wherein:

a production quantity value represents a quantity of the product to be manufactured during each time window; and

the cumulative production value is determined by summing the production quantity values over all time windows.

4. The method of Claim 3, wherein the production quantity value is determined by dividing a total demand value representing total demand for the product over all time windows by the number of time windows.

5. The method of Claim 1, wherein:

the lean buffer stock value comprises a first lean buffer stock value for a first planning horizon; and

the method further comprises determining a second lean buffer stock value for a second planning horizon preceding the first planning horizon using the first lean buffer stock value for the first planning horizon.

6. The method of Claim 5, further comprising:

determining a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon; and

determining a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon, the second production quantity value being determined by summing the first lean buffer stock value and the second total demand value.

7. Software for inventory management, the software being embodied in at least one computer-readable medium and operable when executed by a processor to:

determine a cumulative demand value for each of a plurality of time windows within a planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the planning horizon;

determine a cumulative production value for each time window, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the planning horizon;

determine a lean buffer stock value using the cumulative demand values and the cumulative production values, the lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the planning horizon; and

make the lean buffer stock value available for use in manufacturing the product.

8. The software of Claim 7, wherein the software is operable to determine the lean buffer stock value by:

determining a difference between the cumulative demand value and the cumulative production value for each time window; and

selecting the largest positive difference among all the time windows as the lean buffer stock value.

9. The software of Claim 7, wherein:

a production quantity value represents a quantity of the product to be manufactured during each time window; and

the software is operable to determine the cumulative production value by summing the production quantity values over all time windows.

10. The software of Claim 9, wherein the software is further operable to determine the production quantity value by dividing a total demand value representing total demand for the product over all time windows by the number of time windows.

11. The software of Claim 7, wherein:

the lean buffer stock value comprises a first lean buffer stock value for a first planning horizon; and

the software is further operable to determine a second lean buffer stock value for a second planning horizon preceding the first planning horizon using the first lean buffer stock value for the first planning horizon.

12. The software of Claim 11, wherein the software is further operable to:

determine a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon; and

determine a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon, the second production quantity value being determined by summing the first lean buffer stock value and the second total demand value.

13. A system for inventory management, comprising:  
memory containing:

a cumulative demand value for each of a plurality of time windows within a planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the planning horizon; and

a cumulative production value for each time window, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the planning horizon; and

one or more processors collectively operable to:

determine a lean buffer stock value using the cumulative demand values and the cumulative production values, the lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the planning horizon; and

make the lean buffer stock value available for use in manufacturing the product.

14. The system of Claim 13, wherein the processor is operable to determine the lean buffer stock value by:

determining a difference between the cumulative demand value and the cumulative production value for each time window; and

selecting the largest positive difference among all the time windows as the lean buffer stock value.

15. The system of Claim 13, wherein:

a production quantity value represents a quantity of the product to be manufactured during each time window; and

the processor is operable to determine the cumulative production value by summing the production quantity values over all time windows.

16. The system of Claim 15, wherein the processor is further operable to determine the production quantity value by dividing a total demand value representing total demand for the product over all time windows by the number of time windows.

17. The system of Claim 13, wherein:  
the lean buffer stock value comprises a first lean buffer stock value for a first planning horizon; and

the processor is further operable to determine a second lean buffer stock value for a second planning horizon preceding the first planning horizon using the first lean buffer stock value for the first planning horizon.

18. The system of Claim 17, wherein the processor is further operable to:  
determine a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon; and

determine a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon, the second production quantity value being determined by summing the first lean buffer stock value and the second total demand value.

19. A method for inventory management, comprising:

determining a cumulative demand value for each of a plurality of time windows within a first planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the first planning horizon;

determining a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon, the first production quantity value representing a quantity of the product to be manufactured during each time window of the first planning horizon;

determining a cumulative production value for each time window of the first planning horizon using the first production quantity value, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the first planning horizon;

determining a first lean buffer stock value using the cumulative demand values and the cumulative production values for the first planning horizon, the first lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the first planning horizon;

determining a cumulative demand value for each of a plurality of time windows within a second planning horizon preceding the first planning horizon;

determining a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon;

determining a cumulative production value for each time window of the second planning horizon using the second production quantity value;

determining a second lean buffer stock value using the cumulative demand values and the cumulative production values for the second planning horizon, the second lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the second planning horizon; and

making the first and second lean buffer stock values available for use in manufacturing the product.

20. Software for inventory management, the software being embodied in at least one computer-readable medium and operable when executed by a processor to:

determine a cumulative demand value for each of a plurality of time windows within a first planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the first planning horizon;

determine a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon, the first production quantity value representing a quantity of the product to be manufactured during each time window of the first planning horizon;

determine a cumulative production value for each time window of the first planning horizon using the first production quantity value, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the first planning horizon;

determine a first lean buffer stock value using the cumulative demand values and the cumulative production values for the first planning horizon, the first lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the first planning horizon;

determine a cumulative demand value for each of a plurality of time windows within a second planning horizon preceding the first planning horizon;

determine a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon;

determine a cumulative production value for each time window of the second planning horizon using the second production quantity value;

determine a second lean buffer stock value using the cumulative demand values and the cumulative production values for the second planning horizon, the second lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the second planning horizon; and

make the first and second lean buffer stock values available for use in manufacturing the product.



21. A system for inventory management, comprising:

memory containing:

a cumulative demand value for each of a plurality of time windows within a first planning horizon, the cumulative demand value for a time window representing a cumulative demand for at least one product over the time window and all previous time windows in the first planning horizon; and

a cumulative demand value for each of a plurality of time windows within a second planning horizon preceding the first planning horizon; and

one or more processors collectively operable to:

determine a first production quantity value for the first planning horizon using a first total demand value that represents total demand for the product during the first planning horizon, the first production quantity value representing a quantity of the product to be manufactured during each time window of the first planning horizon;

determine a cumulative production value for each time window of the first planning horizon using the first production quantity value, the cumulative production value for a time window representing a cumulative quantity of the product that can be manufactured over the time window and all previous time windows in the first planning horizon;

determine a first lean buffer stock value using the cumulative demand values and the cumulative production values for the first planning horizon, the first lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the first planning horizon;

determine a second production quantity value for the second planning horizon using the first lean buffer stock value and a second total demand value that represents total demand for the product during the second planning horizon;

determine a cumulative production value for each time window of the second planning horizon using the second production quantity value;

determine a second lean buffer stock value using the cumulative demand values and the cumulative production values for the second planning horizon, the second lean buffer stock value representing a quantity of the product to use as a lean buffer stock for the second planning horizon; and

